FIG. 1

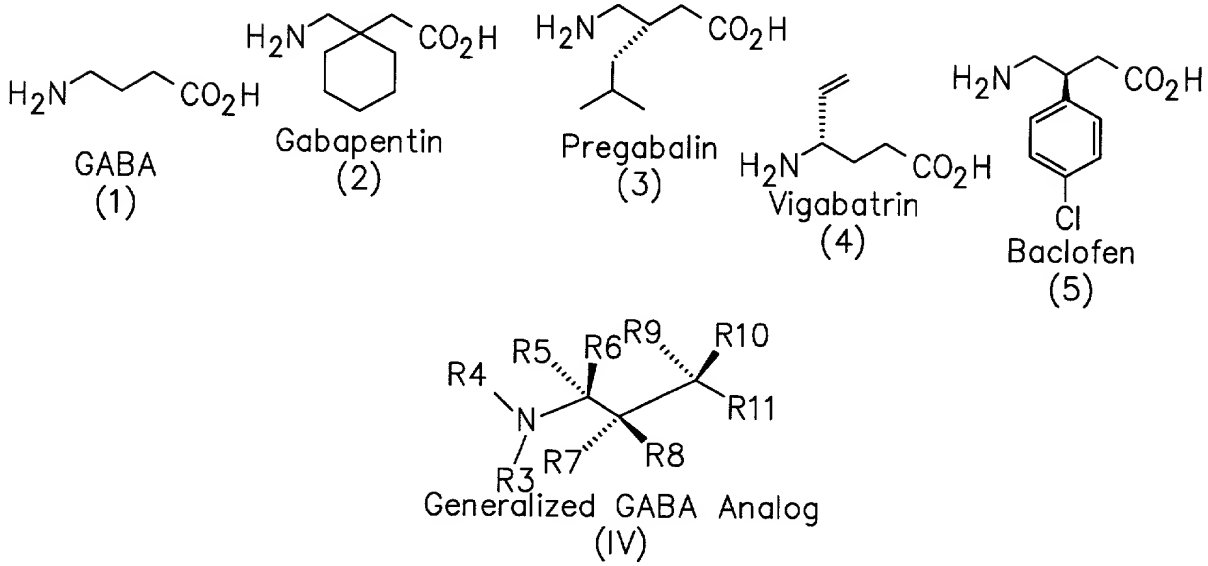
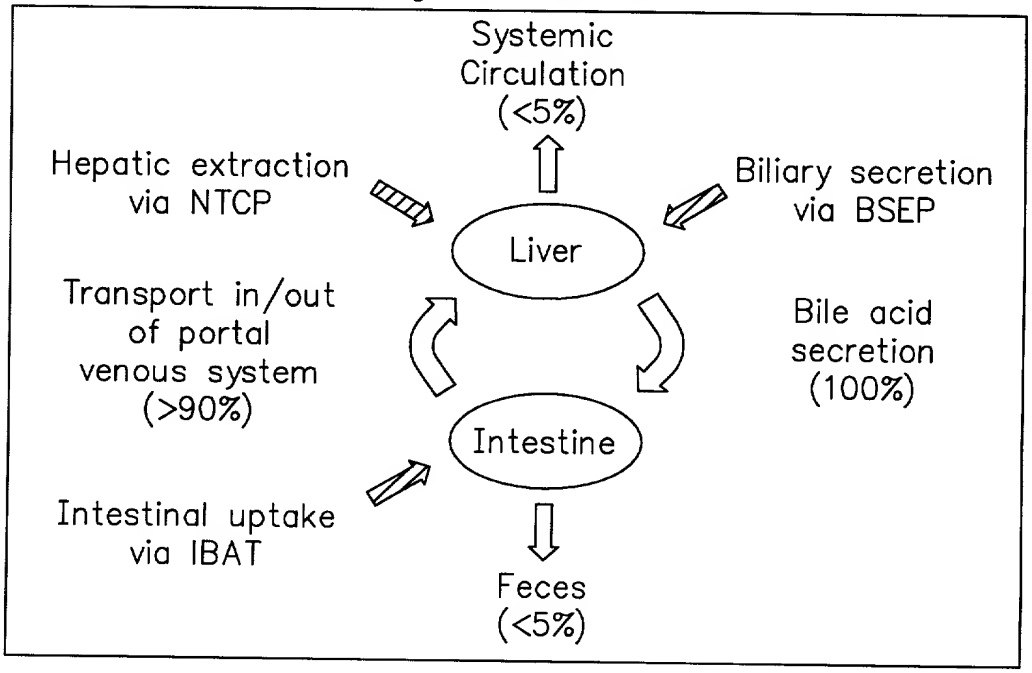


FIG. 2

The Enterohepatic Circulation with Key Transporter Proteins Mediating Bile Acid Circulation



2/5

FIG. 3

Bile Acid Conjugates of HMG–CoA Reductase Inhibitor

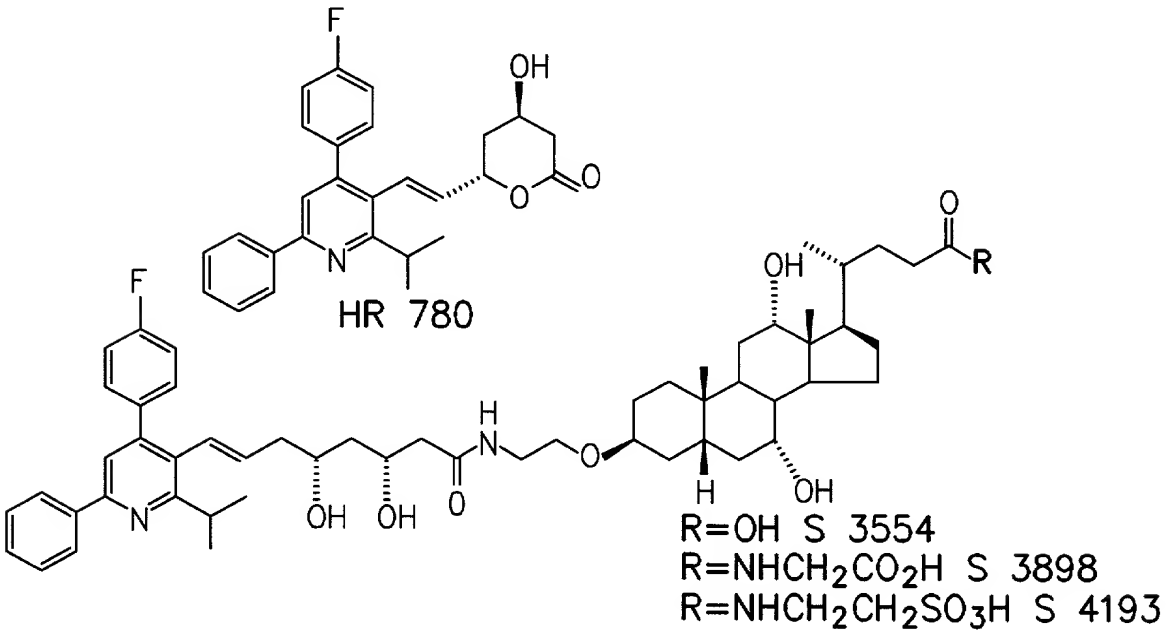


FIG. 5

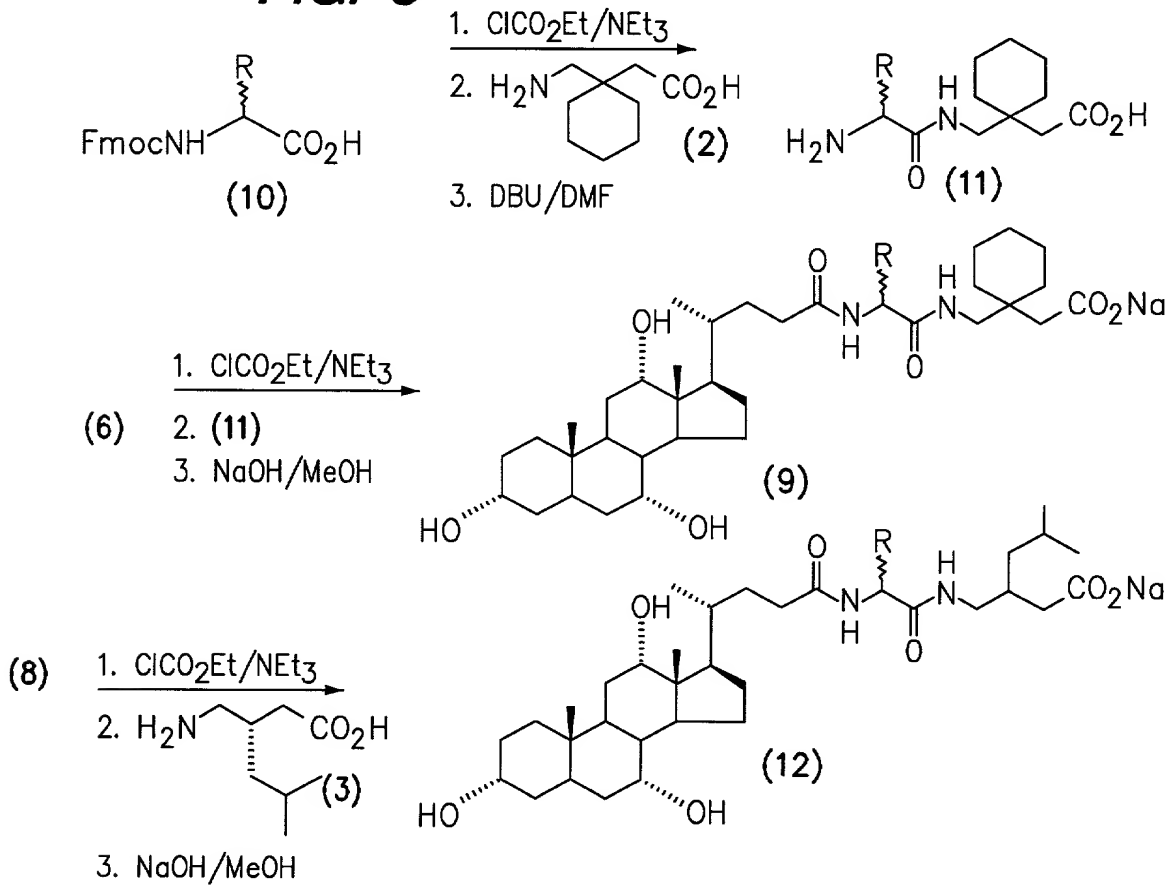


FIG. 4

1. Ac2O, py
2. PhI(OAc)2
I2, hν, Δ
1. KOAc, 18-crown-6
DMSO
2. NaOH, H2O
1. (11), Dioxane,
H2O
2. NaOH, MeOH
py, CH2Cl2
(13)
(14)
(15)
(16)
(17)

FIG. 6

FIG. 7

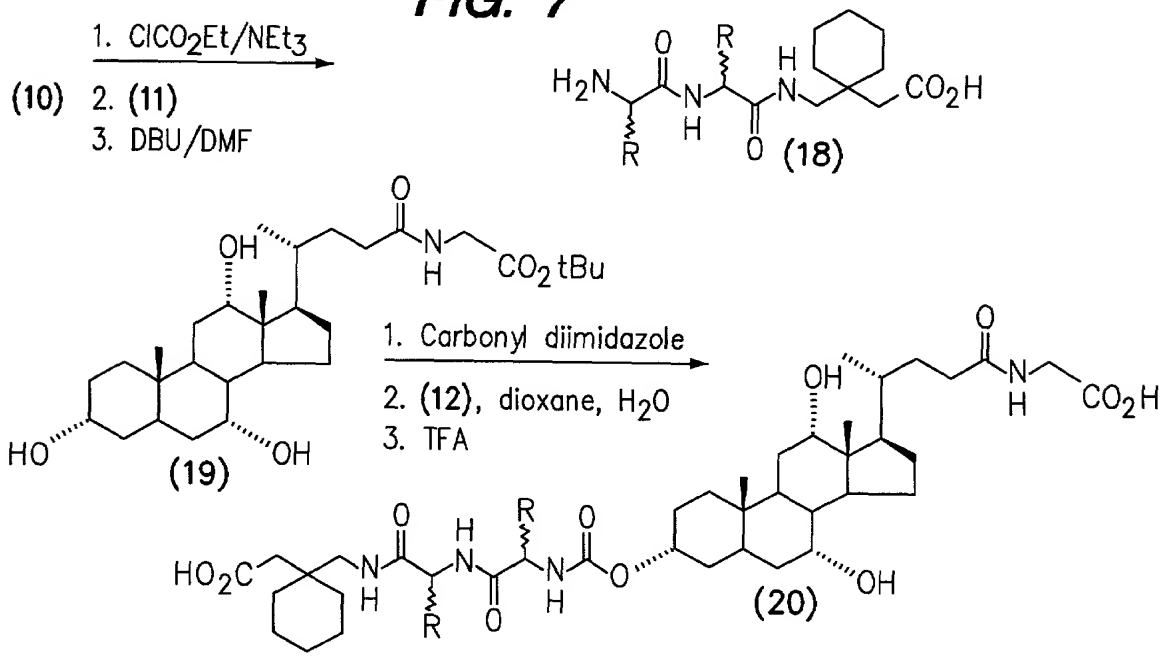
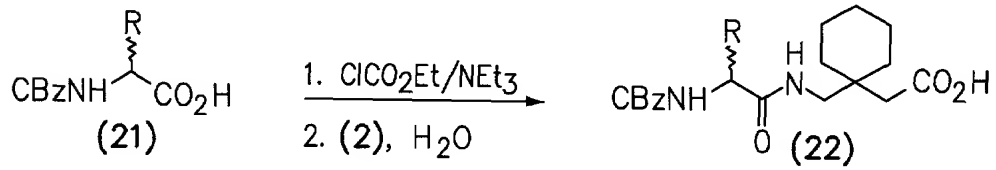
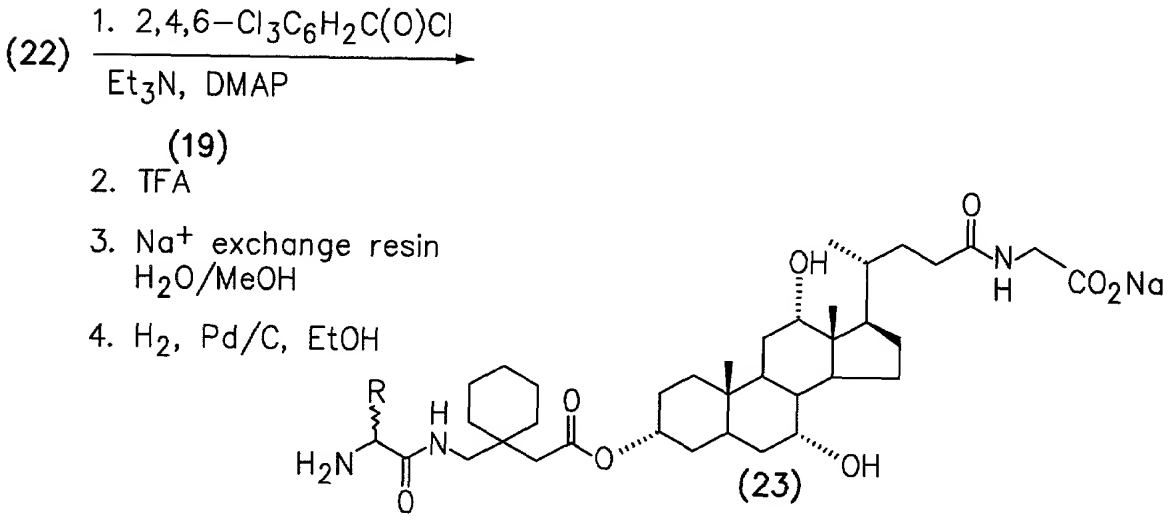

1. ClCO2Et/NEt3
(10) 2. (11)
3. DBU/DMF
(18)
(19)
1. Carbonyl diimidazole
2. (12), dioxane, H2O
3. TFA
(20)

FIG. 8


(21)
1. ClCO2Et/NEt3
2. (2), H2O
(22)


(22)
1. 2,4,6−Cl3C6H2C(O)Cl
Et3N, DMAP
(19)
2. TFA
3. Na+ exchange resin
H2O/MeOH
4. H2, Pd/C, EtOH
(23)